

RELIABLE CONNECTIVITY FOR LARGE-SCALE DRONE DELIVERY SERVICES



INTRODUCTION

One of the most exciting commercial applications of drone technology is the rapid delivery of groceries and goods straight to your door, providing convenience of the highest order. While last-mile drone delivery has been trialled by a number of companies on a relatively small scale, the huge potential for UAVs (unmanned aerial vehicles) to revolutionize the logistics industry has largely been untapped – until now.

DroneUp is a leading drone services provider with the dream of advancing the industry to make such delivery services commonplace, accessible and easily scaled to serve as many customers as possible. With a team of flight operations experts and certified drone pilots, the company has created an unmanned delivery solution that has attracted the investment of a global retail giant.

The initial partnership between DroneUp and the retailer saw the two companies working together to trial the delivery of COVID-19 testing kits to residential areas within the United States. The scope has since expanded to the establishment of a network of drone hubs that provide delivery of tens of thousands of different items to the retailer's customers.

DroneUp sees its partnership with the retailer as more than a simple vendor-client relationship – both companies believe the collaboration provides an opportunity to not only move themselves forward but also the drone industry as a whole. DroneUp plans to offer other services from its hub locations in the near future, with possibilities for everything from mapping and surveying to security and public safety.

VARIED C2 AND DATA REQUIREMENTS

In order to create these drone hubs and future-proof them for further applications, DroneUp needed to develop an ecosystem that would be able to handle a wide variety of use cases without the need for significant redesign. One of the vital components of this ecosystem would be a reliable connectivity solution.

While it would be possible to create a drone delivery solution that operated completely autonomously without intervention from a human pilot, DroneUp felt it was important to design in a remote piloting capability. Such a capability would provide safety and redundancy for delivery drones, and could also be essential for other use cases that DroneUp pursued in the future. Robust communications would be critical for supporting command and control, as well as for other capabilities such as sensor and video feeds.



CTO at DroneUp
JOHN VERNON

Elsight provided the reliability that we needed, provided the connection consistency, provided the bandwidth. Elsight had the cloud, provisioning, management and software capabilities that allowed us to continue refining and improving, something Elsight still does very well.

THE SOLUTION

In order to achieve the levels of safety and reliability required for drone delivery and other BVLOS (beyond visual line of sight) operations, DroneUp required a solution that would get them as close as possible to what is known as “six nines” of availability, or 99.9999% uptime.

Traditional RF links are too limited in range, and SATCOM (satellite communications) solutions proved to be too expensive. This left cellular as the communications technology of choice. DroneUp looked at a variety of different cellular connectivity products on the market, and found that many were either single-SIM or single-carrier solutions. While the drone delivery use case would not need the bandwidth of more than a single SIM, the ability to utilize multiple SIMs across multiple carriers eliminated the potential problem of having a single point of failure, providing the reliability that was required.

DroneUp selected Elsight’s Halo platform as their connectivity solution of choice. The carrier-agnostic Halo can utilise up to four SIMs from multiple carriers, and uses AI-powered bonding that aggregates all available bandwidth into one, automatically balances traffic, and allows drone communication systems to seamlessly switch to a backup link if network coverage is lost.

Halo is also easy to integrate, runs on an extremely low SWaP (size, weight and power) footprint, and is backed by a cloud management capability. All these factors made it ideal for DroneUp, whose design focus was on rapid iteration and significant amounts of real-world testing in order to achieve their desired levels of safety and reliability and to prove the viability of their delivery solution as quickly as possible.

Elsight played a role in the partnership that amounted to much more than just a hardware vendor. The company has a broad range of experience working with clients looking to scale up their drone businesses to BVLOS operations, and this experience proved invaluable to the development of the communications component of DroneUp’s ecosystem. The two companies are both committed to evolving the drone industry and advancing the state of the art in commercial drone services, making the partnership a natural fit.

CONTINUING TO INNOVATE

Elsight’s Halo connectivity platform was a key component in developing a drone ecosystem that allowed DroneUp to scale their delivery business to a level that has never been achieved before. By the end of 2022, the delivery network operated by DroneUp and the retailer will have expanded to 34 sites across the six states of Arizona, Arkansas, Florida, Texas, Utah and Virginia, potentially reaching 4 million U.S. households.

In addition to delivery, DroneUp currently has other service-based use cases for its ecosystem in development at varying levels of maturity. The company has also made preparations to expand beyond the borders of the United States and offer its capabilities internationally, in service of its goal to become the world’s number one drone services provider.

If you are looking to develop a ground-breaking drone-based service that needs to be scaled beyond the traditional VLOS one-drone-one-pilot model and into the realm of BVLOS, Halo could be a great fit for you. Please get in touch to find out how Elsight can help.



CEO at Elsight
YOAV AMITAI

Creating new business opportunities and helping to develop and expand the BVLOs industry is something we take deep pride in. DroneUp’s drone delivery is an ideal use case of what can be done with the Elsight Halo and our proprietary 6th sense connectivity solution. We are thrilled to be working with John and the entire team at DroneUp, in a promising partnership that will help grow the drone industry, together.

THE ULTIMATE GUIDE FOR
DRONE CONNECTIVITY 2021

Technology, BVLOS, Regulation, Scale,
Time to market



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